

CLAIMS:

1. An optical component comprises a first birefringent layer connected to a second birefringent layer by a shaped interface, an optical axis passing through the first and the second layer, at least the second birefringent layer having molecules movable between a first orientation and a second orientation relative to the optical axis, the refractive index of the second birefringent layer being dependent upon the orientation of the molecules.
2. An optical component as claimed in claim 1, wherein said interface is a curved interface.
- 10 3. An optical component as claimed in claim 1 or claim 2, wherein the first birefringent layer has an ordinary axis substantially perpendicular to the optical axis and an extraordinary axis substantially perpendicular to the optical axis.
4. An optical component as claimed any one of the above claims, wherein at least 15 one of the first layer and the second layer comprises a liquid crystal.
5. An optical component as claimed in any one of the above claims, wherein the second layer comprises a liquid crystal in the nematic phase.
- 20 6. An optical component as claimed in any one of the above claims, wherein in the first orientation, the angle of the molecules relative to the optical axis changes as a function of distance along the optical axis.
7. An optical component as claimed in any one of the above claims, wherein the 25 second layer comprises a liquid crystal, with the first orientation corresponding to the liquid crystal being in the twisted nematic phase.

8. An optical component as claimed in any one of the above claims, wherein the second orientation corresponds to the second layer having the extraordinary axis parallel to the optical axis.

5 9. An optical component as claimed in any one of the above claims, further comprising actuation means, arranged to change the orientation of the molecules.

10. An optical component as claimed in claim 9, wherein said actuation means comprises at least two electrodes arranged to apply an electric field to the second layer.

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11. An optical scanning device for scanning an information layer of an optical record carrier, the device comprising a radiation source for generating a radiation beam and an objective system for converging the radiation beam on the information layer, wherein the device comprises an optical component, the optical component comprising a first birefringent layer connected to a second birefringent layer by a shaped interface, an optical axis passing through the first and the second layer, at least the second birefringent layer having molecules movable between a first orientation and a second orientation relative to the optical axis, the refractive index of the second birefringent layer being dependent upon the orientation of the molecules.

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12. A device as claimed in claim 11, wherein the optical component forms a controllable lens within the objective system.

13. A method of manufacturing an optical component comprising a first birefringent layer and a second birefringent layer, the method comprising:
25 providing a first birefringent layer with a shaped surface;
providing a second birefringent layer adjacent to the shaped surface of the first birefringent layer;
wherein the molecules of the second birefringent layer are arranged to be
30 movable between a first orientation and a second orientation relative to an optical axis passing through the first birefringent layer and the second birefringent layer.

14. A method as claimed in claim 13, wherein the second birefringent layer is provided by capillary cell filling.

15. A method of manufacturing an optical scanning device for scanning an information layer of an optical record carrier, the method comprising:

5 providing a radiation source for generating a radiation beam;

providing an objective system for converging the radiation beam on the information layer; and

providing an optical component, the optical component comprising a first birefringent layer connected to a second birefringent layer by a shaped interface, an optical axis passing through the first and the second layer, at least the second birefringent layer

10 having molecules movable between a first orientation and a second orientation relative to the optical axis, the refractive index of the second birefringent layer being dependent upon the orientation of the molecules.